Abstract

Introduction: Albumin is considered an important extracellular antioxidant molecule. Hypoalbuminemia is a strong and independent predictor of mortality in patients on hemodialysis. The present study evaluated the relation between hypoalbuminemia and oxidative stress by comparing superoxide dismutase activity, lipid peroxidation and antioxidant micronutrient consumption in chronic renal failure patients. Methods: A case-control study was carried out with 64 patients of both sexes aged 18 to 59 years. The patients with hypoalbuminemia (ALB < 3.5 g/dL) were defined as case (n = 26) and control (n = 38) those with ALB ≥ 3.5 g/dL. Determinations of activity superoxide dismutase (SOD) and nitric oxide production by the contraction of nitrite in erythrocytes, concentration of malondialdehyde (MDA) in plasma, lipid profile and micronutrient antioxidants intake were performed. For comparisons between groups, the Student t test was used. Possible associations between variables were tested using the chi-square test and Pearson correlation test. Results: Consumption of copper was significantly lower (p < 0.05) in the group with hypoalbuminemia. There was a positive correlation between the concentrations of albumin and intake copper (r = 0.280). Negative correlation was found between albumin and MDA concentrations. Conclusion: Hypoalbuminemia is associated with increased lipid peroxidation, and can contribute to oxidative stress in chronic renal failure patients. Additionally, patients with chronic renal disease undergoing hemodialysis evaluated in this study had reduced consumption of cooper.

Keywords